

**IMPROVED SELF-ALIGNED CONTACT PROCESS  
IMPLEMENTING BIAS COMPENSATION  
ETCH ENDPOINT DETECTION AND  
METHODS FOR IMPLEMENTING THE SAME**

5

**ABSTRACT OF THE DISCLOSURE**

A method for enhancing the fabrication process of a self-aligned contact (SAC) structure is provided. The method includes forming a transistor structure on a surface of a substrate. The method also includes forming a dielectric layer directly over the surface of the substrate without forming an etch stop layer on the surface of the substrate. Also included in the method is plasma etching a contact hole through the dielectric layer in a plasma processing chamber. The method also includes monitoring a bias compensation voltage of the plasma processing chamber during the plasma etching process and discontinuing the plasma etching process upon detecting an endpoint signaling change in the bias compensation voltage.